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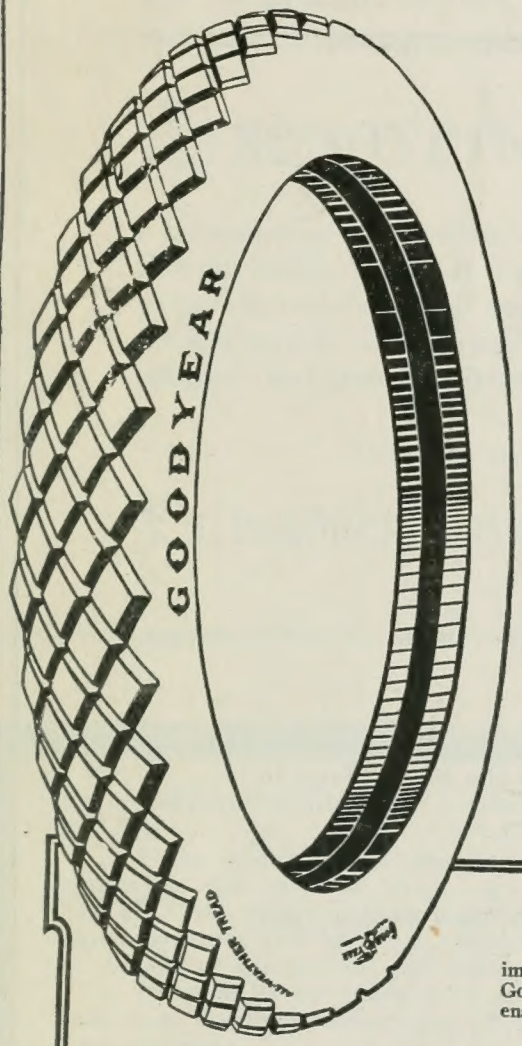

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D. Harvey, Coldwater	11,000	J. Vandrick, Drayton	11,500	McBride's Garage, Toronto	18,292	J. B. Weir, Vancouver	15,000
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THE CANADIAN MEDICAL MONTHLY

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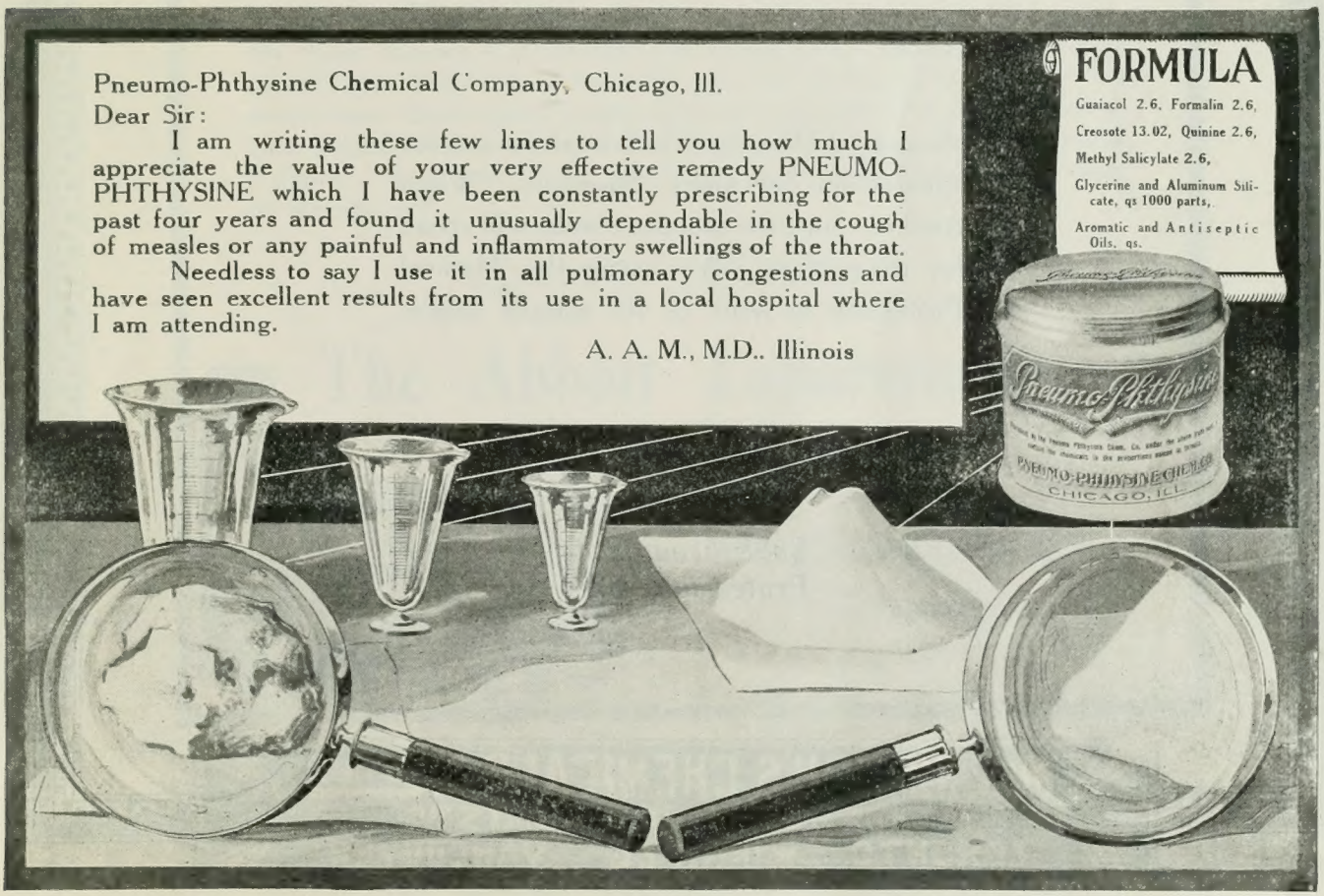

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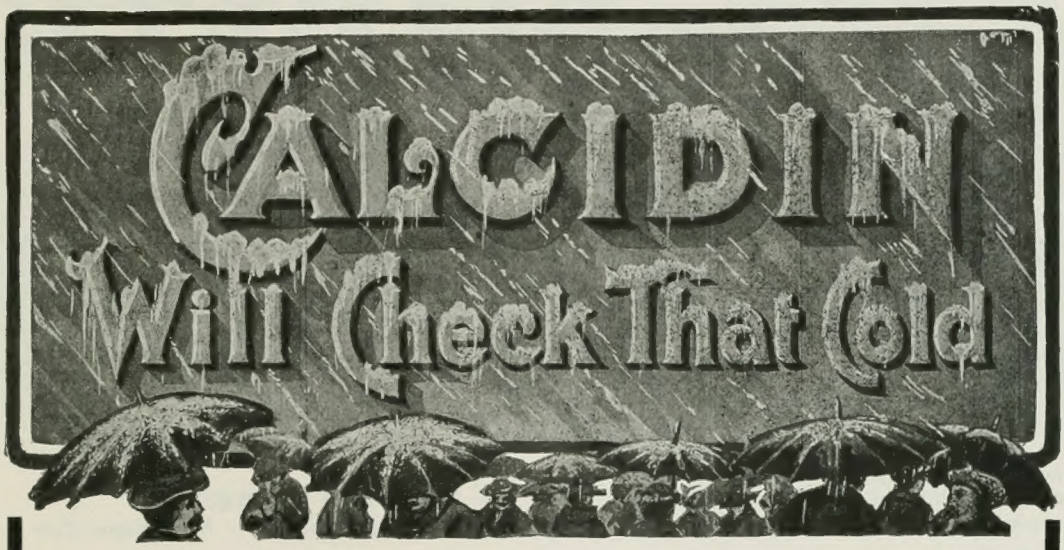

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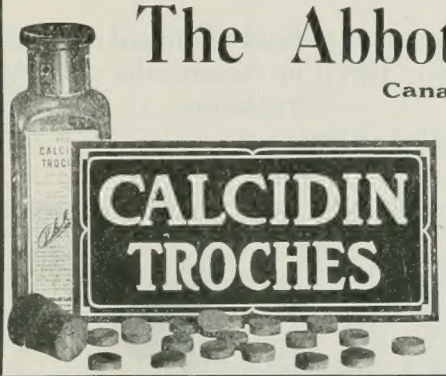

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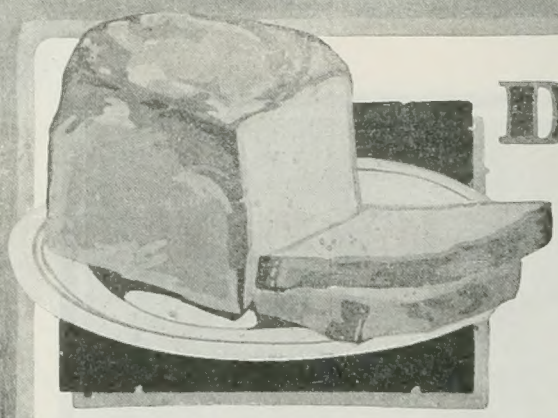

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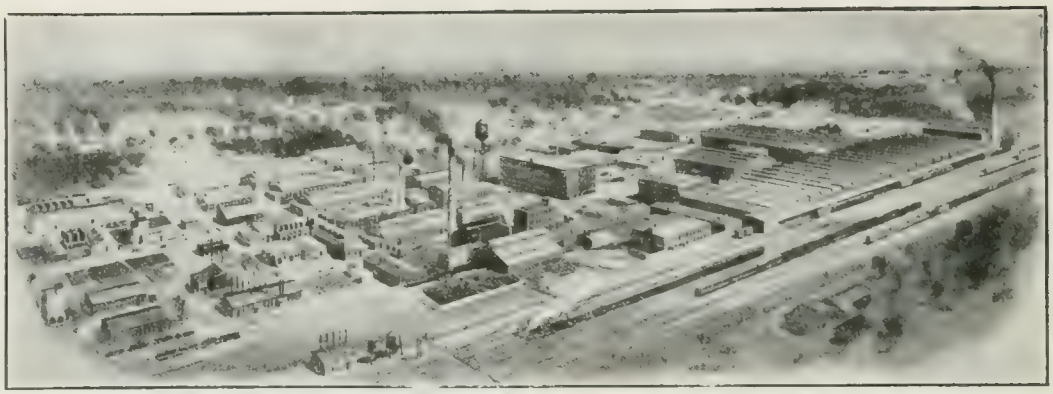

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Literature on Request

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P. O. Box 192, Windsor, Ont, Canada

The Canadian Medical Monthly

VOL. V., NO. 11 TORONTO, CANADA NOVEMBER, 1920

EDITORIAL

INFLUENCE COUNTS

One evening while sitting in his study, a Canadian Member of Parliament was visited by quite a large body of his townsfolk who wished to know if the Legislature were concerning itself with a Medical Bill. Upon being informed in the affirmative this carefully organized delegation proceeded to advise the local member that they would bitterly resent any legislation which would encroach upon the "liberty" and "rights" of their particular healer, belonging to one of the outstanding groups of irregulars, and further counselled that such weighty opinion as theirs be gravely considered in whatever action the local member might take in connection with the said Medical Bill.

This sort of personal-contact-type of propaganda is being carried on constantly throughout the length and breadth of Canada and to some avail, if we may judge by the attitude shown by certain Provincial Legislatures in the handling of medical legislation.

What is the medical profession doing to offset such insidious practice? Very little if anything, and largely nothing. Our legislators as individuals tell us "We are here to serve the people. We try to deal with all matters of public policy according to their merits and the facts as we see them." The ——— and the ——— are more generous with their literature than you allopaths, and some of their arguments certainly appeal to a layman as logical and sound.

It seems reasonable to assume that if every Member of Parliament were made thoroughly acquainted with *all the facts* surrounding the practice of medicine in the fullest sense of the term, that Medical Legislation would be enacted in the best interests of humanity, and that surely is the only legislation which we as a medical profession desire.

Let us then do our part, which we have hitherto failed to do. Recriminations then, if any, will not be on our heads but upon those who may ignore the facts which they openly pledge themselves to observe and which they assert are the principles which govern legislative policy and enactment.

THE EARLY DIAGNOSIS AND TREATMENT OF CARCINOMA OF THE BREAST*

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It would almost seem that one should first tender an apology for approaching such a subject because we are all well aware of the fact that nothing new has recently been added to our already voluminous literature in this field, but the fact is that my long sojourn in New York, and more especially my work in the clinics impressed me very deeply with what I would like to term the tragic side of cancer of the breast—hence the subject of this paper—because a late diagnosis is too often responsible for the tragedy.

The treatment of carcinoma in all regions is far from satisfactory, but the fact is quite generally agreed upon that the disease is a local one at the commencement, thus the earlier the diagnosis the greater should be the chance of cure if our treatment is sufficiently radical. It is not possible to get an early diagnosis in some regions of the body, but a lump in the breast may be recognized when it is very small indeed, and in fact the patient herself only too often contributes to the late diagnosis by being diffident in the matter of seeking advice after she has made the discovery of such a lump. A note of warning might very well be sounded among the laity on the dangers of trifling with any lump in the breast because the odds are overwhelmingly in favor of malignancy in this particular region. Billroth, in his statistics at Vienna, reported 82 per cent. of all breast tumors malignant; Schmidt at Hiedelberg, 82.66 per cent; Bryant and Gross in the United States, 83.16 per cent. and 82.47 per cent. respectively.[1] Ewing[2], in his most excellent work on neoplastic diseases, says of cancer of the breast—"Developmental anomalies leading to fibro-adenoma and sequestration of breast tissue form a tissue predisposition in a certain group of cases. By far the most important element in the tissue predisposition is chronic productive mastitis. The great majority of cancers develop in organs altered by reactive inflammatory processes." Thus we have our small remaining percentage of benign tumors under grave suspicion so we might quite properly ask the why of any delay in radical treatment, once the diagnosis of a tumor mass has been made.

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*Read before the Harvey Club, London, Ontario.

It seems to me that the teaching of our older text books is partly responsible for the present state of affairs. Rose and Carless[3] in the differential diagnosis of fibro-adenoma says:—"There is no concurrent enlargement of the axillary glands, unless arising from other causes, and no retraction of the nipple with which it is entirely unconnected, whilst the skin over it does not dimple. The general health is unimpaired unless the patient is suffering from an associated anæmia." Von Bergmann's system of surgery[4] goes on to say: "If there are nodules that are immovable in the gland itself, if the overlying skin is adherent, and if there are lancinating pains, retracted nipple and enlargement of the glands there should be no doubt whatever regarding the diagnosis." These extracts are taken from works which many of us used as text books a few short years ago, and they both give a splendid picture of the late case of carcinoma of the breast. Truly there is no doubt about the diagnosis in such a picture, and only too often are such cases presented to the surgeon in the hope that he may perform the miraculous and cure the patient. Is it any wonder that doctors in general hold such a pessimistic view of the treatment of this condition, when we have been asked to look for the above signs in making a diagnosis?

I consider this subject one of the most important problems of the day both medically and sociologically. After we have made all due allowance for improved methods of microscopic diagnosis of tumors, more frequent autopsies and the more complete registration of causes of death we still face the fact that cancer is enormously on the increase. At the congress of the American College of Surgeons, held in New York last October, Dr. W. J. Mayo[5] made the statement that one woman in eleven in the United States dies with cancer and second place as to frequency of location is generally accorded to the female breast. "Statistics elaborately presented by Williams and Hoffman show a remarkable increase in the recorded deaths from cancer during the last fifty years. In England in 1840 the cancer deaths were 1 in 129 of the total; in 1905 1 in 17. Very similar indications are found in the records of most civilized countries. Williams calculates that in England, in 1900, 1 in 15 of all men and 1 in 9 of all women living at 35 years of age are destined to die of cancer. In England cancer is now a more fatal disease for women than tuberculosis." (Ewing Neoplastic Diseases—page 115.)

EARLY DIAGNOSIS.

"If the general practitioner, who, as a rule first sees the cases, could be taught to remember that 80% of all mammary neoplasms are malignant and also be prevailed upon to forget the erroneous teaching of a past era relative to the hopelessness of mammary carcinoma, there is not the slightest doubt that the percentage of radical cures by operation would be increased materially during the next few years." So says Rodman[6] in his work on diseases of the breast. Many of you are familiar with the Irishman's advice to his son when the inevitable fighting commenced at Donnybrook Fair: "If you see a head—hit it." Would it not seem reasonable to apply this logic to the subject in question

and advise every woman with a lump in her breast to get rid of it at once. The operation will cure all benign neoplasms and according to our present day statistics 30 to 40% of the malignant ones, depending upon the care and extent of the dissection. Let us first consider then the diagnosis of lumps. To properly examine the breasts our patient should lie down and expose the entire thorax so that the breast tissue may be palpated against the underlying ribs. In this manner one may readily detect small masses and form a splendid idea as to their consistency. Simply picking up portions of the breast between thumb and fingers is a very fallacious method and will convey the impression of numerous hard masses in many multiparous women who are suffering from what might almost be termed a physiological mastitis. After feeling several such masses a small tumor which is pathological may readily be passed over. The stony, hard feeling of carcinoma is in evidence very early, to the educated finger although we have the type of colloid cancer which Halstead[7] has written about, and which is usually mistaken for a simple cystic tumor, in the early stages. Carcinoma is never encapsulated so that it quickly attaches itself to surrounding tissues and, if near the surface, the characteristic dimpling of the skin will be in evidence just as soon as the growth attaches itself to the underlying fascia. Palpable nodes in the axilla and beneath the axillary border of the pectoralis major appear quite early in many cases, but the enlargement is frequently a simple hyperplasia at the commencement and, if the case is sufficiently recent with the nodes freely movable, we must not conclude that the disease has already involved these regions. On the other hand the nodes may be in the matter of diagnosis. Contrary to opinions which we formerly held, pain carcinomatous without being palpable so that this point should have no place is usually a late manifestation of the disease and not an early one. This we can readily understand if we stop to consider the cause of the pain in carcinoma. The growth is quite as painless as any benign tumor until it has succeeded in attaching itself to nerve structures and this may not happen until the disease is quite well advanced, and perhaps beyond hope of cure. "In 65% of our malignant cases the patient suffered no pain until several months, and in some cases until several years after the discovery of the lump."—John B. Deaver[8] in Deaver and McFarland on diseases of the breast. I believe that many of us have heretofore allowed the matter of age to enter into the consideration in diagnosis. Let me again quote from Deaver—"When tumors of the breast appear before the age of forty the probabilities are that they are benign. To believe on the other hand, as is common among physicians, that cancer of the breast is rare before this age is a mistake—cancer of the breast is a common disease in women under forty years of age." I have seen many women under thirty years of age come into the cancer clinics of New York with carcinoma of the breast and the disease is usually more highly malignant in young people—still further emphasizing the importance of early diagnosis of this class of cases where we have often been inclined to wait for the so-called classical signs of the disease. One of the

most rapidly growing carcinomas that I ever saw was in a woman 27 years of age and the apparent origin of the tumor was in an old sinus resulting from a chronic abscess. The woman had very recently nursed a baby and presented herself with a hard lump in the breast about 2 cm. in diameter, together with two scars where recent abscesses had been incised. The mass was already attached to the fascia but there was no evidence of any metastases. In spite of a positive diagnosis operation was refused. The patient returned in a very few months in a totally inoperable condition—axillary and supraclavicular nodes enlarged and partly fixed, considerable edema of the arm and a large mass in the breast almost ready to ulcerate.

DIFFERENTIAL DIAGNOSIS.

We have already taken the ground that the diagnosis of a lump in the breast calls for early and complete operation but we must differentiate a possible neoplasm from at least three conditions which are more or less common and do not always require surgical treatment. (1) Diffuse chronic mastitis or abnormal involution. This disease is frequently bilateral while tenderness on pressure and pain are quite usual symptoms. In the early stages of carcinoma these symptoms are very rare indeed and bilateral carcinoma is still more rare. The distinction between a localized chronic mastitis, either simple or productive with cyst formation, and carcinoma in the early stages is often impossible without the aid of the microscope, but this comes under the heading of lumps and should be treated surgically. (2) Tuberculosis—I recall having seen one case of tuberculosis of the breast diagnosed and operated for carcinoma. A radical and complete dissection was done and the parts healed readily, the patient making a good recovery from the operation but afterwards showing quite well marked signs of tuberculosis of the lungs. Deaver says "The incipient stages of the two conditions are indistinguishable. Sclerosing tuberculous mastitis is characterized by the development of a mass which, in the absence of abcess formation, is difficult to differentiate from carcinoma. The pre-operative diagnosis in cases of this nature included in our collected series of cases was invariably carcinoma." Generally speaking, tuberculosis of the breast is a secondary manifestation of the disease so that the associated constitutional symptoms should lead us to look for the primary focus. Rapid changes in consistency, localized pain and tenderness with the tendency to fistula formation are the usual signs of tuberculous masses. (3) Syphilis—Whether appearing as a primary lesion, gumma or as a diffuse fibrosis of the breast our present means of diagnosis are usually sufficient to make ready differentiation possible. A chancre may very closely resemble Epithelioma but the history of onset and the duration are widely different and a dark field examination for the Spirocheta Pallida will soon settle the question. In the case of the later lesions we are very likely to have evidences of the disease in other parts of the body and a positive Wassermann reaction is of great assistance although we should not forget that a negative

reaction does not necessarily mean anything. Then we can always fall back upon the time honored therapeutic test which seldom fails to shed light upon the subject.

TREATMENT.

We can no doubt all agree that a radical surgical operation is the treatment and I would like to emphasize the word radical just as strongly as I have tried to emphasize early diagnosis because I feel fully satisfied that a thoroughly painstaking dissection in these early cases will cure a very large percentage of them. I rather like to work with the idea in my mind that carcinoma is liable to get the tissues that are left behind and so don't leave anything behind except necessary anatomical structures. In other words endeavor not to leave any chance for a local recurrence. Of course one cannot control metastases which already may have been established in other parts of the body. If we are satisfied to rest upon our clinical diagnosis of carcinoma then the radical operation should be done at once, but if we wish to have the opinion of the pathologist, a wide local excision of the mass followed by frozen section is the logical method. I would like to make a point in this connection regarding the local excision because I feel that it has been conclusively established that any incision into carcinomatous tissue opens up the danger of implantation of cancer cells as well as hastening metastasis. For this reason we should keep the line of our excision well away from the neoplasm in all directions. There are many radical operations recommended for carcinoma of the breast, and it is not my intention to bore you with a detailed description of any of them but I would like to point out a few of the things that I consider important in the surgical treatment of this disease. A great deal has been learned by close observation of local recurrences after operation, and I feel quite safe in venturing the opinion that recurrences are most commonly seen in the skin and subcutaneous tissue, including fat. For this reason the old idea of taking the nipple as a guide when making the elyptical incision over the breast has been discarded in favor of a somewhat similar incision taking the neoplasm itself as a central point and necessitating the excision of a large skin area on all sides of the tumor mass. Closure of the wound should be an entirely secondary consideration at this stage of the operation as large areas may be readily closed by either primary or secondary skin grafting according to the Tiersch method. Personally, I am much in favor of the secondary graft as this considerably shortens, what is bound to be a long operation, if we do a thorough dissection, and the grafting is readily done under local anesthesia about two weeks after the radical operation. To avoid recurrence in the subcutaneous tissue it is necessary to reflect the thinnest possible flaps leaving fatty tissue over the entire field to be removed with the tumor mass. Considerable difference of opinion exists among surgeons as to the advisability of complete or partial removal of the pectoral muscles, but if we consider the fact that the pectoralis major is involved in about 50% of cases together with the fact that several lymphatic glands are situated between the two pectorals we can

readily see the advantage of a complete removal of the larger muscle. The pectoralis minor is a serious encumbrance to a complete dissection of the upper portion of the axilla and should therefore be completely removed. Fascia should be freely excised because of its close association with the lymphatics and the dissection should be followed across to the opposite pectoralis major and prolonged downwards to excise the sheath of the upper section of the Recti muscles. A complete dissection of the axilla should commence by splitting the sheath of the axillary vein as this procedure makes it possible to sweep the entire contents of the space, composed of lymph nodes, fat and fascia, from apex to base, leaving the muscular floor of the axilla entirely bare. Definite anatomical landmarks having been established on all sides of the tumor mass we are now ready to free the tissues from the chest wall by carrying the dissection from above downwards on the ribs and intercostal muscles without having at any time cut across the cancer field. Willy Meyers operation has given splendid results and is a more radical procedure than Halstead's but Handley's[9] operation is still more radical and the technique includes all the points mentioned in this paper. One of the unpopular aspects of both the Meyer and Handley operations is the additional time required to make the careful painstaking dissection which they have shown to be necessary if we are to give the patient a real chance of complete recovery. Thoroughness and not speed must be the watchword in all cancer surgery if we expect to increase the number of cured cases.

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THE NURSING SITUATION AFTER THE WAR

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During the war when nursing schools were doing their utmost to meet the demands of the Army and Navy as well as those of civil hospitals and the public health field, it was thought by many that after the war there would be such a surplus of nurses that the condition might be embarrassing.

Such, however, has not been the case. Never has there been such expansion in the field of nursing activity. Overseas nurses have gone into the public health field by hundreds. The Red Cross is employing nurses at home and abroad in large numbers while carrying out the health program of so-called peace times.

Nurses with a normal school or college education are being sought by colleges and school boards to take charge of Nursing and Health Departments, and of the health of students in all kinds of schools.

Hospitals are requiring more and more graduate nurses as administrators, anæsthetists, X-ray and laboratory assistants. During the war many nurses assumed the positions of executive assistants in large hospitals in place of the doctors who went overseas and they have been so successful that with the dearth of desirable medical applicants for these positions it seems likely that the nurses will be retained.

Nursing schools are rapidly being established in connection with state universities; the United States Army has made the nursing school a permanent part of its organization. New hospitals are multiplying, old hospitals enlarging so that the need for nurse executives and instructors, both theoretical and practical, was never so great.

Well trained nurses are now scarce in the home nursing field as everywhere else, and the shortage of student nurses throughout the country is said to be appalling.

As usual in any emergency there is a strong tendency to take a short cut to meet the situation. Many are advocating very short courses and recommending easier educational requirements in nursing schools. Anyone who has studied nursing history and knows anything about the situation knows that such a policy would be suicidal.

It is undoubtedly a time for careful analysis by experts and for constructive action. It is a time when personal and selfish motives must be put aside, and as health is a community interest, the community, with members of the medical and nursing professions, must co-operate in readjusting preconceived ideas about nurses' work and nurses' responsibilities as well as methods of hospital administration and nursing school curricula.

Fortunately that great benefactor, The Rockefeller Foundation, has interested itself in the matter and has a well selected committee making a serious study concerned with the education of public health nurses, hospital superintendents, professional nurses, and social workers.

When that research is completed and the report published we may hope for a better general understanding of the situation as it is, and of what should be done to improve it.

The writer believes that there will be model endowed schools established in the future that will demonstrate nursing as a quite independent profession which must be directed by experts in the profession. It must be disentangled from domestic labor on one hand and from medical domination on the other.

The nurse has a quite distinct field from the household servant and from the doctor. Her work can correlate with both as it can with social workers, dietitians and the various therapeutic practitioners who have sprung up in the field of medicine. The education of the professional nurse can never stop at specialization in the beginning. She must have her substantial theoretical ground work and her practice must be broad and general enough to include an intelligent understanding of normal physical and mental conditions as well as familiarity with abnormalities; it must include a fair knowledge of contagious, tubercular and psychiatric nursing, as well as of medical, surgical, pediatric and obstetrical nursing.

This experience can only be given student nurses by eliminating every superfluous kind of "duty" now commonly included in a nurses' course. This can only be done when schools for nurses have their own endowments and are independent of the hospital treasury.

When this kind of an education is made possible we shall have nurses for nursing work in all kinds of institutions.

This paper does not pretend to solve any of the problems arising from the situation because that would involve a discussion of legislation, health insurance, the training of attendants and the enlightenment of the whole public as to its relation to hospitals and nursing schools.

The fact that experts are at work on these problems is the important and most encouraging bit of knowledge at the present time. The trend of events promises a more intensive study of community needs, a closer coöperation between community groups and an effort to create a service that shall be inclusive rather than exclusive.

RAMBLES IN HEALTH

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Know all the good that individuals find,
Or God and Nature meant to mere mankind,
Reason's whole pleasure, all the joys of sense,
Lie in three words, health, peace and competence.
But health consists in temperance alone.
And peace, Oh virtue, peace is all thy own.
—(Pope).

According to mythology the curiosity of a woman, Pandora, is responsible for all the ills from which mankind has suffered throughout the ages. She it was who opened the casket in which all these were confined, and allowed them to escape upon an unsuspecting world. Very likely she, like other mortals, was sorry when it was too late to repair the damage. The legend does not tell us the date of this occurrence; but it was some time in antiquity when gods and men contended. Man is supposed to have acquired from a certain god, Prometheus, a knowledge of the use of fire and other things which might improve his methods of living; and in revenge for his presumption, Pandora was permitted to open the casket and turn loose upon us all the evils from which we suffer. The old gods were certainly very spiteful persons and took a mean advantage of us. The reader can believe this or not, as suits his fancy.

Primitive man, from his methods of living, was necessarily a pretty husky individual and enjoyed good health as a natural consequence of his existence. There was no place in the scheme of things for the weakling, and his sojourn in the world was short. Brute strength crushed all opposition ruthlessly. The weak member could not compete with the strong and vigorous and was eliminated automatically in the struggle for existence. His elimination was due to the operation of Nature's law governing the survival of the fittest; the strong and vigorous survived; the weakling fell by the wayside. This same law is in operation to-day, but because of the development of science, is not so severe in its action as it formerly was. Some of the ancient peoples, indeed, assisted Nature in its elimination of the unfit. Apparently they considered Nature as not being a responsible party who could be trusted to do a good job. Perhaps her methods were not up to date. Probably the criticism of efficiency experts stimulated them to attempt some improvement. Anyhow, self-conceited man thought he could help things along and proceeded to put his ideas into effect. In ancient Sparta, children were regarded as being the property of the State.

The parents, aside from bringing them into the world, had very little to do with their education or care. These people were the original exponents of one of the principles of Bolshevism, i.e., the nationalization of children. Evidently Bolshevism is not a new thing at all, since in this respect, it was practised ages ago. Therefore Messrs. Lenine and Trotsky have no legitimate claim to the credit for its discovery. Well anyway, the interests of the State, in those times, were paramount and children were valued according as they might become liabilities or assets of the country. Very shortly after the birth of the child, it was inspected by a committee appointed by the Government, for that purpose, to determine its value. If it gave promise of developing into a strong and vigorous individual, it was to be preserved; if the contrary, it was to be destroyed. The standard of value was physical perfection. Looking at it from a purely impersonal standpoint, the method appears to possess some merit. The State was not compelled to provide for the care of weaklings; nor was the ancient civilization burdened, with the provision and support of hospitals, sanitaria and insane asylums, as is the present. No doubt you will say that the practice was inhuman; and so it was, from our point of view. But we must take into consideration the difference, in the state of education and intelligence, between the ancients and ourselves. Nor can we properly appreciate the difficulties under which they labored or the conditions under which they lived. At present this principle of selection is applied by the live stock industry, in selecting the most nearly perfect animals for breeding purposes. Of course no one would think of applying it to human beings, at least not in the rigid manner just mentioned.

However, the legendary state of primitive man could not have been one of felicity. He is supposed to have sprung spontaneously from the earth, but the reasons for this supposition are not given. I suppose that the author of the legend, following the line of least resistance, assumed that man did spring from the earth, since he had to originate somewhere. At any rate, he was an animal without initiative or understanding. He knew nothing of masonry or carpentry, but lived in holes and caves in the earth. He knew not the uses of horses and cattle, nor had he any knowledge of agriculture. He probably killed his food with sticks and stones, and since he had no fire, devoured it raw. You will admit that to exist at all under these conditions required almost unlimited strength and endurance. The weakling was lost before he had got a fair start. Life was a continual round of hardship. When our primitive ancestor wanted a wife, he did not go fussing around taking her to the movies or dances. There was no reckless spending of his hard earned—whatever it was he earned—on chocolates, ice cream, pink lemonade or peanuts. Courtship was simple and inexpensive, in those days; and the marriage ceremony was brief and to the point, and very effective. Having decided to marry, our illustrious ancestor watched his chance and at the first opportunity, seized the object of his affection, clubbed her into submission and dragged her off to his cave home to be the

partner of his joys and sorrows—mostly the latter, I imagine. Very likely they lived as happily as they were able, or as happily as some modern married people do, ever after. The usual family squabbles would occur. The so-called head(?) of the house, no doubt indulged in the primitive equivalents of our modern dissipations. The consequences would be the same as those of modern times, modified by the conditions then existent. Nothing is said about divorce. Apparently this agent for the promotion of domestic happiness, was not in use. Still, it could not have been very difficult for a dissatisfied husband, by means of a good heavy stone club, to get rid of an undesirable wife. I do not suppose that the police departments, in those days, were any more efficient than they are now; nor that the law was any more complicated in its action. Probably the plea of temporary insanity, or the unwritten law, backed up by a plentiful supply of—whatever they had instead of cash—the whole to be manipulated by a good clever lawyer, would get the offender off with a very light sentence. Our civilization hasn't so much to brag about after all. Sun, moon and stars were, to these primitive people, objects of fear and worship. The rocks, trees, air, water, clouds, etc., whose influence was either good or bad, and on these they laid the blame for such fortune or misfortune as they had. The care of the sick and wounded was not a burden to be lightly undertaken. It was vitally important that a man keep himself fit. If he became incapacitated from any cause, he received very little consideration and, very likely, was regarded as a burden to be gotten rid of at the first opportunity. The spirit of ancient times in the care of the sick and weak, was not one of compassion. Nor do we need to go far back into the past for an example. With some tribes of our American Indians, it was customary to leave the sick and weak to die, since they were not of any more use in the world, and their care was a heavy burden to their relatives and friends. The sympathetic care of those aged or suffering from disease, originated in the teachings of Christ. To Christianity belongs the credit for teaching people to care for human suffering.

The care of the sick, whenever any care was taken of them, was quite a complicated procedure. The people believed in the existence of various gods and spirits, who influenced the lives, actions, prosperity or poverty, health or disease, of mankind. It was necessary that these spirits be consulted and propitiated in all undertakings; and health or disease was regarded as being the expression of their pleasure or displeasure. Consequently incantation, sacrifice, interpretation of signs, and consultation of oracles were a recognized part of medical treatment. We, of course, do not believe in spirits, excepting perhaps the liquid variety; but the ignorance and superstition of the people, in ancient times, made the observance of these things necessary. If the physician did not observe these rites, it was apparent that he did not know his business and accordingly he lost the confidence of the public and, along with it, whatever practice he had. The modern physician is in the same position as his ancient predecessor, if in the treatment of disease, he depart from the pre-conceived notions of patients.

Human nature has not greatly changed. If the thin veneer of modern civilization be rubbed off, we find primitive man underneath.

The treatment of disease, as followed in the temples of ancient Greece, affords an example of old-time methods. These temples were erected in honor of Aesculapius, who was supposed to have been the son of Apollo; and who became so proficient in treating the sick, that he was accused by Pluto of causing a diminution of the number of shades in Hades. Mankind is always "butting in" where he has no business to, and upsetting things. These temples were erected on wooded hills or near mineral springs and became popular sanitaria not unlike our modern health resorts. Evidently the health resort is a very old institution and not a modern development, as some people would have us believe. These sanitaria or health resorts were managed by physician-priests, who offered prayer and sacrifices on behalf of the patient—for a consideration, no doubt. Patients were treated by means of mineral baths, inunction, massage, etc. During the rite of the temple sleep, the priest, in the guise of the god, appeared to the patient to offer advice. This was afterward interpreted by the physician-priest, who prescribed emesis, catharsis, sweating, or whatever other remedies seemed suitable. The evidence regarding the usefulness of these methods is conclusive; they have persisted throughout the ages. If the patient recovered, which sometimes happened, he offered sacrifices to the god and a record of his case was hung in the temple, reference to which would, I presume, be of assistance to the physician-priest, in handling some other case of a similar nature. I wonder if the patient paid his bill in cash, or gave his note for the amount, or simply promised to see his physician again some time and attend to it. This last method of payment is a very common one now-a-days. I suppose it has its origin in ancient times, just the same as some methods of treatment. If so, then our modern ingenuity is not nearly so efficient as we imagined. In most cases the records of treatment are meagre. It was thought sufficient, in some cases, if one of the sacred dogs or snakes in the temple licked the diseased part, or the god annointed the sufferer in his sleep. The whole business, as we see it, was a farce; but it was impressive and suited to the state of intelligence of the times. The practice of fraud also originated with the ancients and has persisted through the centuries. We with our supposedly superior knowledge, have no right to regard scornfully, the ignorance of our forefathers. Frauds and quacks flourish in our time. Patent medicines are held in higher esteem, by persons who should know better, than the hard earned knowledge of the skilled physician.

The essentials for success in the patent medicine business, so far as I can judge, are as follows: (1.) A formula containing small quantity of drugs in doses which are harmless, some coloring matter, a flavoring extract, alcohol which is a very important ingredient in these days of prohibition, and water which is cheap and makes up the bulk of the dope. (2.) The most important element in the combination—a skilled advertising agent. (3) Sufficient capital to put the

stuff on the market; and capital is very sympathetic where large returns are assured. Judging from some of the claims put forward, this sort of a combination,—i.e., the patent medicine, will work more miraculous cures of any and all diseases, than the combined skill and knowledge of all physicians since time began. Specific mention of any preparation is not needed. It is only necessary to read the pages of the daily newspapers, to find half a dozen or so patent medicines advertised, the virtues of which make one almost certain that the Elixir of Life has at last been discovered. After reading the various claims set forth, it is astonishing that the race has managed to muddle through so far; for the patent medicine did not always exist. Doubtless other things of a similar nature have taken its place in times past. To these we give thanks for making possible the existence of mankind, up to the present. The public likes to be stung. The gullibility of Mr. Average Man, is the reason for the existence of these great benefits (?). I have not yet found one that claims to raise the dead. No doubt it is only a question of time until some enterprising individual, careless in handling the truth, will discover some agent that will make cemeteries unnecessary. What fools we mortals be.

From the fall of the Roman Empire to the end of the 17th century, records of epidemics, famine and war, fill the pages of history. The conditions of living were not such as to offer any obstacle to the almost universal prevalence of disease. Even in such cities as London sanitation was conspicuous by its absence. The soil was fertile and abundant; only the sowing of the seed was necessary that a bumper crop might be harvested. The majority of houses were mere hovels, with earthen floors never swept, made the receptacle of filth of all kinds; and when too dirty, covered with a layer of straw or rushes. The description rather fits a pig stye, than a house where human beings must live. The streets were narrow, unpaved, undrained, with no sewer other than the street itself; frequently obstructed with refuse of all sorts; an ideal breeding ground for vermin. The water supply was got from open wells, springs or brooks utterly unprotected from contamination. The people wore rough, coarse clothing hardly ever changed, except when the suit was worn out. Overcrowding was common. The food coarse, ill cooked and not too plentiful in amount. These people too, had the high cost of living to contend with. This is a very ancient institution and we have no shadow of right to the credit for its discovery. Under these conditions it is not surprising that the Black Death carried off from one-third to one-half the total population. It is more or less of a shock to learn that conditions almost identical with the above, existed in our own time. It is estimated that in 1907, a million persons died of the plague in India. Judging from a description of the native dwellings, written about 1898, I am surprised that only a million persons were destroyed. Sanitation was a minus quantity. Overcrowding was the rule. The huts contained the accumulated filth of years. The walls were of bamboo and plastered with cow dung or filthy mud. The floors were of hard packed earth, covered with food remnants and other refuse.

and contained holes in which were deposited the urine and faeces. The diet was poor and scanty. Add to this the stoicism of both Hindu and Mussulman, precluding all initiative on the part of the people, so that they made no effort to help themselves, and it is not surprising that the death roll totalled only one million?

If scientific sanitation could have been applied in both the above mentioned instances, the chances are that the results would have been different. And since we realize the importance of sanitation, and that it is intimately bound up with social, moral and public life, a few remarks on its history may not be out of place. The science of sanitation may be described as the common-sense application of the lessons learned, of the causation of disease, in devising preventive measures. Its history is not a long one and as we understand it, hardly covers a period of more than sixty or seventy years. It may be considered to have originated with the work of Jenner against smallpox; Cook against scurvy; and Howard against typhus, in the latter part of the 18th century and early part of the 19th, but until lately, very little progress was made. The recent advances have been remarkable. The necessity for sanitation is more and more being appreciated by the public; and preventive measures such as isolation, segregation and quarantine, are being more rigidly applied. People are demanding protection against disease, although some, with true Anglo-Saxon stubbornness, fight against any regulations, the enforcement of which, would give the protection demanded. The cry of unwarranted interference with individual liberty is raised; and since liberty is dear to the heart of the Anglo-Saxon, the result is unreasonable opposition. Witness the vaporing of the anti-vaccinationists, whose arguments have gained some attention of late. Opposition usually arises from reasons of sentiment or religion; but in most cases, I think, it is due to ignorance. Some time ago a certain woman was asked why she did not have her children vaccinated, so that they might be immune to smallpox. The answer was that she did not believe in interfering with Providence. If Providence had intended her children to be immune to smallpox, they would have been born so. This argument is foolish. More than that, it is dangerous and displays an ignorance that is truly astonishing. Applying the same line of reasoning, I suppose that if Providence had intended us to wear clothes, we should have been born with these coverings attached to our bodies. What utter nonsense. The argument is ridiculous. Passing the buck to Providence will not save us from the consequences of our own foolishness, or prevent the outbreak of serious disease. In nearly all countries and among all peoples, epidemics were looked upon as being visitations, by way of punishments from their god or gods. The people prayed to their god or gods, this being the only method they believed in for combatting disease; but apparently "business as usual," was their slogan and they carried on as before. Needless to say the results were not as had been anticipated. Faith is alright, and we should not get very far without it; but if it be not accompanied by works of the proper kind, it will not accomplish much.

From remotest antiquity great value has been placed on an abundant supply of pure water. Centres of population sprang up around those points where it was most easily obtainable. In the history of ancient Greece we find no record of public sanitation, although personal hygiene was highly thought of. The Romans were a military people and appreciated the importance of good water and drainage. They built an aqueduct to carry water to the City of Rome from a distance of thirty miles. The Cloaca Maxima indicates their appreciation of the necessity for sewage disposal, and through it most of the liquid refuse from the city was discharged into the Tiber. Apart from the army, not much attention was paid to personal hygiene. True, bathing was considered important, and public baths were provided and used freely by any and all persons. I am not sure that this promiscuous bathing did not greatly assist in spreading the various epidemics which frequently attacked the people. They thought highly of the art of swimming. Naturally this was a necessity in the military life of those days. A common description of an ignorant man was that he had learned neither to read nor to swim. *Nec litcras didicit nec natare.* Indirectly, by means of their military works, the Romans accomplished a great deal in the way of sanitation.

The ancient Egyptians, if we can believe Herodotus, were very careful to preserve their health. They believed firmly in cleanliness. They cleansed their bodies externally by bathing; internally by fasting and the use of purgatives and emetics, for three days each month. This latter procedure seems to be a more strenuous business than is necessary. The ancients appreciated good health and were prepared to make great efforts for its preservation. I suppose our Egyptian gentleman would not have considered himself properly cared for without his monthly session with purgative and emetic. As usual the religious orders had the worst of it. The priests were compelled to bathe four times in twenty-four hours, twice during the day and twice during the night, in cold water. They also shaved themselves all over their bodies so that lice and other vermin might not find lodgement on their persons. The life of the priest could not have been very enjoyable. It is hard enough for most of us to get into a cold tub once a day. A great many of us refuse to do it even that often. According to the standards of the ancient Egyptian we are a very dirty crowd. Think of it, four cold baths in every twenty-four hours, for all the rest of your life. I ask you, gentle reader, would you undertake to carry through such a scheme? Does not the thought of it make your teeth chatter and your body to shiver? The temperature in my room is several degrees lower than when I started this business.

Leaving the cold baths alone, the desire to prolong life is a most natural one, requiring neither explanation nor apology. Death is not welcome in any household and it is obvious that any means of preventing, or at least postponing, its occurrence will receive consideration. Just why death should be so dreaded is not clear. Our belief teaches us that it is simply the door, through which we

pass, from this vale of tears to something better. According to Seneca, it is the accompaniments of death that are frightful, rather than death itself. Juvenal accounts the close of life as one of the benefits of nature. Perhaps it is not such an awful thing to die after all. It is as natural to die as to be born, and perhaps one is as painful as the other. At any rate, death comes to all soon or late Most of us would rather it came late than soon. "Nothing is certain, in this world, except death and taxes," I have heard. Certainly taxes are like the poor, in that they are always with us. In the present state of the world's affairs, taxes are very certain—but perhaps we grow pessimistic. Death is not to be averted, but modern preventive medicine, by conquering some diseases and eliminating causal infections, has been able to postpone considerably, the moment of dissolution. This being the case, any reasonable preventive measures are worthy of consideration. Formerly community hygiene was emphasised and a great deal was accomplished. The step which is now demanded, is the application of hygienic measures to the individual. After all a community is simply an aggregation of individuals, and its health can be estimated by considering the condition of the units composing it. The method of application is most difficult. Most of us adults are more or less set in our ways and confirmed in our habits, good or bad, and would resent any interference with our privileges. The child is easily influenced and lessons learned during early years, are not easily forgotten. Since the whole business of acquiring health is more or less a matter of education, does it not seem reasonable to make a start during the years when knowledge is most easily got?

Health is described as being that condition in which we obtain freedom from bodily pain or disease, vigor of mind and moral purity. A healthy man, according to Carlyle, is one all lucid and in equilibrium—*mens sana in corpore sano*. It may be defined as a sound mind in a sound body. If a man has these two things there is not much else for him to desire. If he lacks either one of them, then nothing else will avail much as a substitute. When we consider the ills to which the flesh is heir, and the numerous agencies that exist seemingly for the sole object of destroying life, is it not surprising that we are so careless regarding our body's health? Health is not a small matter, to be considered idly for a moment, and then tossed aside. It is vitally important. It is a man's fortune and he ought to watch it more carefully than does the capitalist his heaviest investment. It lightens the effort of both body and mind. Without it little can be done except by slow and exhausting toil. If people were instructed in their own make up; if they understood that disease is not an accident, but has definite causes, many of which could be destroyed, then a great deal of misery and suffering could be done away with. Think you that the scrawny, narrow chested, round shouldered, anemic individual, lacking energy and initiative, is the type to perpetuate a strong vigorous race? There are too many of these depressed, lifeless imitations of humanity. With what brazenness can our great cities boast their civilization when, in their midst, thousands are suffering from lack of

God's freest gift—pure air and sunshine. How much health and happiness is being sacrificed by overcrowding and unsanitary living conditions? Living in rooms that cannot be ventilated, lacking pure air and the benefits of light and good water, and the means of removing filth, is surely not conducive to good health. When will people understand that they are as truly poisoned by living in such dens, as by eating tainted meat and decaying vegetables? Nor is there much sign of improvement. The tendency seems to be for people to flock into already overcrowded cities, leaving behind them, vacant acres crying for cultivation. Lack of production, and increased demand for products, have a great deal to do with the high cost of living. Overcrowding, underfeeding, unsanitary living conditions, are doubtless assisting in the preparation of a soil suitable for the spread of disease in the future. All these conditions prevailed before the onset of great epidemics in time past. If history repeats itself, there is considerable trouble ahead of us.

I presume that all of us like to be happy. Unfortunately we cannot attain the same degree of happiness in all things. In so far as our health is concerned, we can make some effort on our own behalf; for health brings happiness and pleasure and, in fact, is the basis of all pleasure. Therefore, if health means a happy life, it seems to me that we should be willing to spend some time and effort in obtaining it, and in maintaining it after it is acquired. Health is necessary in the business world. A strong constitution able to withstand hardship and fatigue is almost essential. This applies to the mind as well as to the body. The unfortunate who is either physically or mentally weak, or both, stands to be worsted in the struggle for existence. Yet most of us think we are too busy, to exercise a little care for our bodies. We are so busy chasing the nimble dollar, which is really worth somewhere about forty-nine cents, that other things are hardly worth while. How far could any of us chase a dollar if our bodies were diseased? It seems to be the impression that the accumulation of dollars is necessarily followed automatically by the acquisition of health. All will agree that dollars cannot purchase happiness. And if health is the basis of happiness, then it is equally true that dollars cannot buy health. Health has no monetary value. If the accumulation of wealth is to be paid for by the loss of health, what have we gained; money? Not at all. Probably a few years of misery, for which all our dollars cannot purchase relief.

A large percentage of recruits examined for service in the armies, during the world war, was declined on account of not being physically fit; not necessarily on account of active disease, but because of conditions which could have been prevented by proper care and training in early years. The discoveries made as to the condition of the country's man power have been astonishing, and the complete records are not yet available. According to the Journal of the American Medical Association, a study made of the records of about 2,500,000 men, by Lieut. Col. Love and Major Davenport, for the medical department of the United States Army, showed 468 defective men per 1,000 examined. Many defects were

remediable. Some diseases were curable. Probably most of them would never have occurred if proper hygienic measures had been adopted or applied by these men, in earlier years. All statistics show that the great bulk of these defects were preventable. This apparently means that the educational system is at fault somewhere and the primary cause of these troubles is ignorance. Since a hard, tough, healthy body cannot be acquired suddenly, but is the product of years of development, it follows that training must be commenced early. If a healthy body is developed early, the chances are that it will remain so; for its resistance will be such that disease will not easily fasten upon it. Here are a few simple and easily remembered hints, which may be of use in developing a healthy body during childhood. Plenty of fresh air, exercise, proper amount of sleep, plain nourishing diet, no alcoholic drinks, very little or no drugging, regular evacuations, simple and loose, well fitting clothing. These, if adhered to, reasonably, will go far towards preventing trouble. It is nothing more or less than the application of common sense in the education of children. Every child has the right to be healthy. Why should he be made the victim of the ignorance or carelessness of his parents?

Fresh air is free. That and sunshine are about the only things we get for nothing in this world. If we had to buy it in bottles, the same as we do other so called elixirs of life, we should probably use more of it. Anything that does not cost us good hard cash we, apparently, think is not much good. Perhaps some of us regard fresh air in this way. Fresh air is essential in establishing and maintaining a condition of health. Children, especially because they are laying the foundation for future building, should be encouraged to get out into the air as much as possible, whether it be hot or cold. If the body be sufficiently covered, cold air is not harmful. A greater supply of fresh air is demanded in childhood, during the building operations, than at any other period of life. Yet, very often, the opposite is the case. Some people seem to detest fresh, cool air as they would a Hun. When the child goes out, which is seldom, he is muffled up in clothing until life is not worth living. The house is overheated; doors and windows shut tight. Any cracks through which air might enter, are stuffed with old rags or papers. Odors of various natures circulate freely, making a vile atmosphere. The child becomes peaked, pale and weak. Disease fastens upon him at the least exposure. Still, parents wonder why they should have weak, sickly children. The proper thing to do is to turn the child out of doors. Let him play in the sun, the wind, the rain, the cold. He will not be hurt. Reasonable exposure brings physical toughness. If his body will not stand exposure to the inclemency of the weather, it will give him very poor service throughout life. When he is grown up it is too late to train him. He will suffer many ills and spend many a miserable hour, wishing he had been made physically tough in his youth.

Exercise and sleep need no special mention. Neither should alcoholic drinks; for in these days of prohibition, theoretically at least, there ain't no such animal. Practically we find that Old John Barleycorn is not nearly so dead as he is supposed to be. He has quite a few kicks left in him yet. The process of dissolution is painful and prolonged. We cannot be absolutely certain that the obsequies will take place.

If I were a dietitian, which I am not, I would present, for your consideration, long lists of eatables good or bad which, supposedly, would remove from your minds all doubt and worry, over what your children should eat. I shall content myself with saying that the child's diet should be simple, plain and nourishing. That covers the whole business of eating. If necessary you may get some other person to interpret for you. Most people eat too much and we find many stomach aches and much misery resulting from excess in eating and drinking. Candy and cake and pie and spices, were never intended by nature as a health building diet. Rich and highly seasoned dishes, condiments and spices, fancy foods cooked in fancy ways, have, I suspect, a considerable bearing on the high cost of living, which may be more plainly described as the cost of high living. Good bread, a reasonable amount of meat, fresh vegetables and fruit will give more nourishment and less trouble. Excess in eating and drinking is a fault encouraged by parents. If the child is somewhat indisposed and has lost all desire for eating, it is not an indication for tempting the appetite with rich foods and fancy drinks. In the onset of most diseases, the loss of appetite is one of Nature's outworks for the defense of the body. The body may be considered as a fortress. When it is in danger of attack, defensive outworks are thrown up. The loss of appetite is one of the most important. However, instead of aiding Nature in her defensive preparations. the very opposite is attempted by foolish parents. The child is tempted and coaxed with all sorts of concoctions and decoctions, until the outwork falls and harmful eating and drinking is the cause of increased trouble and misery. If this is the practice in his childhood, why should he not continue it when he is grown up. He has never been taught differently; therefore custom and habit work together for his harm, both physical and mental. The use of patent medicines, pills, digestives, tonics and purgatives would not be necessary if sensible eating and drinking prevailed. The miserable sufferer from indigestion should be a warning. Short of temper, wasted of form, vile of breath, complaining of weakness, headaches, nerves, constipation and various other symptoms, he is practically starving in the midst of plenty. All this because of immoderate eating and drinking; a habit which he learned in his youth, sanctioned by custom and made easy by indulgence. His is a most miserable existence. If he had received proper instruction, he would probably be the master of his appetite, and would not have been guilty of the excesses, of which his present condition is the result. The old Romans usually fasted till supper which was the only fixed meal, even of those who were accustomed to eat more than once in the twenty-four hours.

The masters of the ancient world were bred up on this spare diet; and judging from their achievements, they took no harm from it, nor felt any lack of energy. The amount of food taken in excess of the body's requirements is wasted. It might better be thrown into the garbage can; for its disposal, in the body, uses up energy that might be employed to better advantage elsewhere.

Another important point in the process of acquiring health is the prevention of constipation. Proper diet and exercise are the two great preventive measures. Where these are applied, usually the condition will not occur.

"Oh ye who build up monuments defiled
With gore, like Nadir Shah, that costive Sophy,
Who after leaving Hindostan a wild,
And scarce to the Mogul a cup of coffee
To soothe his woes withal, was slain, the sinner,
Because he could no more digest his dinner."

—(*Byron*).

The above mentioned exponent of the art of practical desolation, suffered miserably all his life from extreme costiveness. He is supposed to have been killed in a conspiracy, after his temper had been aggravated, by his complaint, to a condition almost amounting to insanity. Of course we say, that no such thing could ever happen to us. I hope not. Still, just because we are so sure about this, let us not get careless over it. Constipation is a serious condition, producing many evils, the least of which can cause a lifetime of misery. And since the condition is progressive and gradually becomes worse, it is quite possible that in time, something, similar to the fate of Nadir Shah, may happen to any of us. It is so easy for any person, by neglect, to get into such a state and the onset is so insidious, that we may be the victims of the complaint before we realize it. Waking up after having had a good long sleep at the switch, and finding ourselves in trouble, what do we do? Consult some person who is qualified to help us? Not at all. What, talk about such a thing to another person, perhaps a total stranger? I should say not. The thing to do, according to a great many people, is to put your trust in some drug preparation, claims for the marvelous efficiency of which, are put forward by the owners of it. So, not stopping to consider that this is probably a money making scheme, we rush out and buy a box of somebody's pills or a bottle of somebody's laxative. Having read the advertising matter accompanying the package, we commence to feel better immediately. "Why my complaint is very simple. I shall be allright in a couple of days. Incidentally I have saved a dollar or so. These doctor sharks would have charged me a couple of bones for such a package as this. Whereas I, myself, went to the drug store and got it for fifty cents." And so we pat ourselves on the back, stick out our chests, and consider ourselves very clever persons. The result of all this preparation is a wild bout with a purgation in a reckless attempt to cure our troubles. It is to laugh. Cure by these means is impossible. The treatment of constipation is preventive; but if the

condition should occur, a regulation of the diet and exercise will give better results than drugs. To give physic for the prevention of this trouble is useless and only makes a bad matter worse. Temperance in eating and drinking, and a proper amount of exercise will do more, as a preventive, than anything else, excepting only one thing, namely the formation of the habit of going to stool at a regular hour each day, preferably after the morning meal. The great cause of costiveness lies in neglecting the calls of nature, either through carelessness, lack of conveniences, or difficulties engendered by faulty clothing. With children an additional factor is their interest in play and sports, which seem to demand their attention to the exclusion of all else. Not for every little indisposition is the physician to be called, who, especially if he be a busy man, will very likely fill their stomachs with drugs. The whole affair is a matter of training. If preventive measures be applied and regular habits established in childhood, then there will not be much chance of constipation making adult years miserable.

Clothing is a matter for serious consideration. It should be loose and well fitting, allowing perfect freedom of movement, conforming to the shape of the individual and not to the mechanical form of fashion. We do not shape our bodies. That is done for us by Nature, and I doubt if any of us can improve on her work. The impression conveyed by modern fashion, is that the body must be made to fit the clothing. This is the reverse of what it should be. Round shoulders, narrow chests, lung diseases, short and vile breath, crookedness and deformity are natural consequences of our attempts to harness the body according to the decree of fashion. Badly fitting shoes, for example, are responsible for conditions that are both harmful and painful; yet, how many people will put up with pain and misery, for the sake of wearing a fashionable shoe. Corns, bunions, flat feet, hammer toes, and several other conditions, result from our efforts to crowd the foot into a shape never intended for it by nature, because it is the fashion. Are we any better than the so called "Heathen Chinee," in this regard, whose sense of the aesthetic demands small feet of a certain shape? The practise of foot binding in China, has been looked upon by us with feelings of horror and disgust. Much ink has been spilled about it. It has been the cause of prolonged and strenuous effort on the part of missionaries to that country. Happily these efforts are now bearing fruit and the practise is being abandoned. But do we not attempt to apply the same principle —i.e., to beautify the feet, in trying to wear our modern shoes? All the evils arising from our presumption in attempting to improve the work of nature, must be paid for sometime. Nature is an inexorable collector. When the account is due, payment must be made. Additional credit is usually not granted.

Many children's constitutions are spoiled, or at least, harmed, by coddling and tenderness. The natural affection of parents for their children, if it be not carefully governed by reason, is apt to do irreparable damage. In connection with the hardening process, it is to be noted that the child should not be too

warmly bundled up, either in winter or summer. The custom of bundling and rolling the child up, in an excess of woollens and flannels, is to be condemned. It only softens him, lessens his powers of resistance, and lays open the way for the onset of coughs, colds, catarrh and pneumonia, should he be accidentally exposed. Thus the poor judgment, not to say ignorance, of parents, is responsible for a great many of the ills of childhood and tends to assist the very conditions they are trying to prevent. The face, at birth, is not more hardened than other parts of the body. Use alone, toughens it and makes it able to endure the cold. Nature has covered the head with a thick growth of hair. If the child can run about all day without a cap, is it not foolish to suppose that at night, additional covering is necessary? Nothing exposes more to coughs, colds, catarrh, sinusitis, baldness and several other afflictions, than keeping the head warm. Again, jumping from one extremity to the other, the feet are usually muffled up in woollen stockings, thick shoes, and overshoes or rubbers, in cool or wet weather. What chance have feet so coddled, to adapt themselves to such conditions as may exist? It is better and will give a greater degree of comfort and safety, if the feet be washed in cold water, daily, and thin shoes and stockings worn. This will harden the feet and avert many a miserable moment. In fact the whole body might well be washed, daily, in cold water. The time at which it is done is probably most convenient on rising in the morning. The practise is beneficial and children can be accustomed to it from earliest years. No doubt I shall be interrupted here, by the loud protests of mothers, nurses and guardians. I shall be described as brutal, and accused of being heartless. I should worry. The child's health is more worthy of consideration than any of these. The object is to harden him by familiarity with cold water, so that he shall not be subject to the mischiefs that usually attend accidental exposure, in those not so hardened. The health and comfort secured would be well worth purchase at a higher price. If the hands, from birth, were muffled up in warm mittens and gloves (hand shoes), the chances are that accidental exposure of them to cold and wet, would be followed by the same ills that we commonly see following the exposure of coddled feet. All this is a matter of training. Our bodies will endure anything, that they are accustomed to, from the beginning. We can, by our own efforts, avert many of our ills.

From the mythological origin of the ills of mankind, to the application of modern preventive measures in the education of children, is a long rough trail, strewn with many pitfalls and snares. Humanity has been singularly successful in falling into most of these, in the struggle upward; but in spite of all obstacles, the progress has been sure. It is for us to continue and the task is not an easy one. In olden days when brute force ruled the world, the mere fact of a person's being able to exist at all, was a guarantee of good physical condition. Education did not amount to much and was despised as being effeminate. Physical perfection was much sought after. War, plague, pestilence and epidemic, ensured the elimination of the unfit. Times have changed. Brute

force is no longer the dominating factor. Education and reason are supposed to rule, although occasional happenings make one wonder if they have not been dethroned. Instead of eliminating the unfit or diseased person, the object of science is to make him as fit as is possible, for the battle of life. So far as the health of the nation is concerned, it is up to us to see that our system of education is one that will, in so far as is humanly possible, eliminate those causes of defects and deformities, which cause ill health in adult years.

THE RELATION OF THE PHYSIOLOGICAL FUNCTIONS OF THE BILIARY TRACT TO TREATMENT

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Dr. Ryerson, in the September number of the Monthly, discussed this relation very ably from the surgeon's point of view. That view, however, is only half the truth; and in this paper I propose to set forth these same relations from a medical aspect.

One function of the biliary tract is to excrete from the blood, a constituent always present in more or less proportions; viz., cholesterol, formerly named cholesterine. This constituent is held in solution, in the bile at least, by one of the biliary acids. When there is a disproportion between both, that is to say, when the cholesterol is in excess of the acid, it is precipitated, generally in the gall bladder, but sometimes even in the ducts of the liver. As a result of this precipitation we have the formation of calculi. Often enough these calculi give rise to no symptom whatsoever. But they predispose to infection from the irritation of their presence, and then we have to deal with cholecystitis. They become lodged in the cystic or common duct or pass through these with difficulty and then we have biliary colic. These are primary effects. Secondary results involve the pancreas producing acute or chronic pancreatitis.

Now rational therapeutics must take cognizance of the causes of the excess of cholesterol in the system, and possibly also of the deficiency of biliary acids in the bile to keep the cholesterol in solution. As to the first, physiologists supply us with data, but none that I am aware of as to the second. They tell us that the sources of cholesterol in the blood are the corpus luteum of pregnancy especially, and the adrenal glands. Hence the greater relative frequency of cholecystiasis in women than in men. They tell us also that the *extraneous* sources of *cholesterol* in the blood are chiefly eggs and fats. A knowledge of these things gives a powerful lever in the medical treatment of *cholelithiasis*.

Next, scientific therapeutics must utilize those drugs which are known to increase and liquefy bile. A drug which liquefies bile must increase the quantity of solving acids. In addition therefore, to preventing precipitation of *cholesterol*, it must have a solvent action upon *cholesterol* precipitated, and therefore upon gall-stones. This has been demonstrated by placing a gall-stone in the gall-bladder of a dog, and finding after some months that the stone had disappeared. To my mind it is useless to look for any drug which will directly solve gall-stones. I placed them in chloroform, ether, alcohol, olive oil, turpentine and a

strong solution of succinate of soda. After four weeks, they remained undissolved. The most affected, and that not much, were those in turpentine and succinate of soda solution. The solution of the problem lies not in the direct action of any drug which may be administered, but in an indirect action upon the biliary tract. Can we increase the flow of bile by drugs? Certainly. Can we increase the flow of solving acids in bile? Take the following:

Dr. G. was operated on for gall-stones and drained. He noticed after two days that the bile flowing through the tubes was scant and curdy from precipitation. Grains three, soda-succinate, t.i.d. Result: a free flow of liquid bile.

Mrs. M. operated on two years before for gall-stones, now suffering from biliary colic. Gave a hypo of morphia and atropine for immediate relief and grs. iii of succinate of soda t.i.d. Next day patient better but sore and tender over the region of the gall-bladder. Continued the succinate of soda for six months and no more attacks of colic.

Mr. H. came to my office from a nearby town with the typical symptoms of biliary colic. Been a victim of these attacks for years. Prescribed soda succinate grs. iii. Six years afterwards on alighting from the train at his home, he clapped my shoulder. "Don't you know me?" "No," "Well, you cured me of gall-stones. I have not had an attack since I saw you."

From all this, it is reasonable to infer that medication has some place in the treatment of *cholelithiasis*. It is not in line with knowledge to rush a patient to operation before medication has had a trial. Neither is it good surgery to adopt procedures, with extra risk which ignore the *vis medicatrix naturae*, assisted by rational dietetics and skilful medication. There is too much of the *high heel boot* in the surgery of our day. In the evidence of this I submit the following:

Mrs. S., age 38, native of Boston, was taken ill with severe pain in the right hypochondrium, vomiting, fever, etc. There was marked tenderness under the right costal margin and some jaundice. The diagnosis was easy and operation gave us over seventy gall-stones of varying size. She was a fat, flabby woman, and her recovery was stormy for three days, though the operation was limited to drainage of the gall-bladder. She made a good recovery, however, and enjoyed excellent health for five years afterwards, barring occasional attacks of uneasiness and pain in the vicinity of the line of incision. These I attributed to either one or two things: viz., adhesions or curdy bile. I acted upon the latter supposition and gave cholagogues with perfect results. Then she went home to attend to her mother in Boston. While there, she had one of her former attacks. The family doctor rushed her into a hospital for operation, secured a specialist, who operated possibly without sufficient investigation, relying upon the physician. He found no stones in the gall-bladder nor in the ducts. What did he do? Here comes in the woman, taking the high heel boot, because it is fashionable, though it is a torture to her crowded toes, and a menace in getting about. He kept in with the fashion, removed her gall-bladder, and had a death

to answer for in three days. It makes one's blood boil to see a sacrifice of this kind upon the altar of fashion, in the medical profession. For heaven's sake, let us get down to first principles and be guided by them! Let us rise above the level of women in the realm of fashion! It was poor satisfaction for the husband of that woman to receive a bill of $250 certified as paid, from the specialist who must have been well ashamed of himself.

Here in passing let me emphasize the importance of professional etiquette. A reference to me, even by a night telegram, would have saved that woman's life unless they were blockheads or commercial sharks.

I come back, therefore, to say, that the relation of the physiological function of the biliary tract to treatment is not solved by the removal of the gall bladder, as Dr. Ryerson's article tries to demonstrate. The solution lies not in coarse and dangerous surgical interference, but in rational deductions from physiological findings, in the light of dietetic and medicinal observations.

INFANT FEEDING

A Consideration of Cow's Milk, Its Chemistry and Chemical Modifications.

Wilmer L. Denney, M.D.

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Because it contains the known essentials of diet, (fat, protein, carbohydrate, mineral salts and water, as well as those additional food factors called vitamines) being physically akin to human milk and, moreover, being capable of many modifications, cow's milk is rightly considered the food of choice in the artificial feeding of infants.

In former days, cow's milk, as used both in the city and rural districts, swarmed with bacteria. Now, owing to sanitary regulations enforced at the source of supply, rapid transit, the adoption of pasteurization in cities, and the education of the mother, this is not generally the case. There are, however, some exceptions to this. In those communities where the production of milk is not subject to rigid inspection, where cows are not tuberculin tested, where more than twenty-four hours elapse before consumption, where ice for preservation is not obtainable or where public pasteurization is not carried out conscientiously, bacterial contamination will probably occur and, for this reason, the milk should be subjected to home sterilization.

The effects of public education in the matter of necessity for clean milk are now being made manifest. Tuberculous glands of the neck, formerly so common, can now be considered almost a rarity. In the city of Boston (where a special study of these conditions has been conducted) the great majority of tuberculous infections in children are believed to be caused by the human type of bacillus. The profession is just beginning to realize that true infectious diarrhea is very seldom seen. The so-called summer diarrhea is not of necessity caused by bacteria. Epidemics of the ordinary contagious diseases due to milk contamination are much less common than formerly.

Clean raw milk is undoubtedly better for feeding purposes than the heated variety. In New York City, two grades of milk are available, "Grade A" and "Grade B." "Grade A" has a low bacterial count and is recommended for the feeding of infants. In "Grade B", the count is somewhat higher, so this is used for adult consumption and for cooking purposes. Both are supposed to contain the same percentage of fat. In Bellevue Hospital, there is a ward containing approximately forty athreptic infants. The weights of these infants are affected on the slightest provocation. During one period, owing to some diffi-

culty in the milk supply, the "Grade A" and "Grade B" varieties were alternated several times. "Grade A" was given raw; "Grade B" was boiled. It was observed that while the infants were being fed raw milk, the average weight curve went steadily upward, but when the boiled regime was instituted the majority of the weight curves were either stationary or had a downward trend.

Although the effect of the heating of milk on its antiscorbutic properties is still a matter of debate, clinicians in the large centres, where pasteurization is almost universal, seem to think that scurvy is much more common since the introduction of this procedure. However, heating for purposes of purification, in many cases, should be advocated.

In considering the matter of the chemical composition of cow's milk, I will quote Holt's figures (1) which are approximately correct for average good herd milk: "fat 4 per cent., carbohydrate 4.75 per cent., protein 3.5 per cent., inorganic salts 0.75 per cent. and water 87 per cent." Besides these familiar substances, it contains various ferments, vitamines and antibacterial alexins.

The fat content (2) is composed chiefly of olein and palmitin along with many fatty acids of lesser importance. Lecithin and cholesterol are found in small quantities. The exact importance of these latter substances is at present unknown.

The carbohydrate content is composed chiefly of lactose. This sugar is a member of the disaccharide group.

The protein consists of casein in the form of the insoluble calcium caseinate and those forms now spoken of as the "soluble proteins" among which the most important are lactalbumin and lactoglobulin. In producing milk modifications, especially those used in difficult feeding cases, we must take into consideration the fact that in cow's milk the insoluble casein is in excess of the soluble protein, while in human milk the reverse is true.

Certain extractives are present, the chief of which are urea, creatin and creatinine. The ferments catalase, reductase, aldehydase, peroxidase, amylase and lipase are present in variable quantities. The oxides of calcium, magnesium, phosphorus and sodium make up the chief inorganic content and are present in slightly greater quantity than in human milk. Traces of potassium and iron salts are present. Chlorine, in combination, is found in amounts varying from ten to twenty per cent. of the total salts. A small amount of citric acid (3) can also be found.

Although, at this time, our knowledge of the special role of the inorganic salts is very meager, we have reason to believe that they may play a very important part in infant metabolism. Recent investigations have shown that retained chlorides contribute at least a part to the pathology of the condition known as tetany and the perverted metabolism of calcium salts is known to be responsible in a large measure for rickets.

In former years, it was taught that the common solids and water were the essential principles of diet. This is not now the accepted teaching. To

these must be added one more group of substances, the exact nature of which is still obscure, namely, vitamines. As long ago as 1906 Hopkins (4) of Cambridge found that animals could not live "on a mixture of pure protein, fat and carbohydrate; and even when the necessary inorganic material is carefully supplied, the animals still cannot flourish."

Osborne and Mendel (5) using synthetic foods composed of the common solids, found that by the addition to this of the residual part of milk after the fat and protein had been removed, the growth and nutrition-promoting properties of these foodstuffs were renewed. Thus the presence of the substances now called vitamines was demonstrated.

Vitamines exist in more than one form, the exact chemical nature of which is, at present, unknown. They are, however, believed to be of a nitrogenous nature. At present, only two definite types of vitamines are known, fat-soluble "A" and water-soluble "B". Both must be present in sufficient amounts in order to complete an adequate diet. The lack of either leads to distinct pathological consequences. These conditions are now understood to be less numerous than was supposed in the first flush of discovery. Normal cow's milk contains both of these factors in abundance.

In order to facilitate digestion, the composition of cow's milk is often altered by chemical changes. These are most often brought about by the action of heat or alkalies. Other agencies are used, but not so frequently as a routine. In order to use these methods intelligently, it is necessary that the chemical reactions or physical changes involved be understood.

We will consider, first, the changes wrought in fresh milk by the application of heat. These changes will vary according to the degree of heat used and the length of time through which the heating process is carried.

If milk is pasteurized (heated to 150° F. for twenty minutes) there is only partial destruction of the bacteria (6); a slight precipitation of calcium salts occurs; ferments are probably and antibacterial bodies are certainly destroyed.

By "scalding" the milk, we mean that it is brought quickly to a boil and allowed to cool at once. By this means, approximate sterility is obtained. A film (7) is formed on the surface composed of a combination of casein and calcium salts. A small amount of the fat content of the milk may remain enmeshed in this film. A greater precipitation of calcium salts takes place than that occuring during the former process.

Sterilization is a term which, as ordinarily used, may indicate almost any process by which bacteria are wholly or partially destroyed. As used in the modification of milk, its meaning should be restricted to an exact arrangement. When milk is brought to the boiling point, and the boiling continued for a period of forty minutes, it becomes sterile. There is complete coagulation of the soluble protein and partial coagulation of the casein. The lactose present undergoes caramelization. Most of the calcium salts are precipitated, and the ordinary fat emusion is interfered with.

The question has long been asked, does boiling destroy vitamines? The answer in the mind of the practitioner seems to be in the affirmative. Owing to the prevalence of scorbutus where boiled milk is used and the observed interference with normal growth under the same circumstances this would seem to be the case. But this attitude is not borne out by recent investigations. McCollum and Simmons (8) have proved that the water-soluble "B" constituent of foodstuffs is not readily destroyed by age, atmospheric exposure or heating from 100 to 120° C. in neutral solutions. In dilute acid solutions, this essential food factor is still more resistant to heat. Other investigators have corroborated this statement. Osborne and Mendel (9) found that butter fat does not lose its growth-promoting potency by treatment with live steam for 150 minutes. They (10) also found it potent after one year in storage under ordinary conditions. In alkaline solution (11) vitamines appear to be less resistant to external forces.

In view of the fact that we have probably been mistaken in considering scorbutus (12) a deficiency disease in the ordinary sense of the word, and in the light of these investigations, it would seem that some of our ideas regarding the cause of the harmful effects of the prolonged use of boiled milk will have to undergo radical changes.

The chemical change that takes place in milk during the process of modification by alkalies can best be described by speaking of it in relation to its effect on rennet digestion. Rennet (13), by its action on calcium caseinate, splits it into a peptone-like body and a molecule of the less soluble paracaseinate. If sodium citrate is added to milk, the calcium-sodium salt is formed. Varying directly with the amount of sodium present, coagulation is either retarded or entirely prevented. On experimental investigation (14), it was found that when rennet of an amount sufficient to make a two per cent. solution was added to milk containing one grain of sodium citrate to the ounce, thirty-seven minutes were required to produce curdling. When two grains of sodium citrate to the ounce of milk was used, curdling did not take place. These standards have been found to be the best in practical feeding.

The action of lime water in preventing heavy clot formation may be explained in several ways. In the first place, it is diluent and any diluent prevents, to a certain extent, the formation of the "classical" large, hard casein curd. Together with this, the calcium hydroxide may unite with the paracaseinate of calcium to reproduce the caseinate. When large quantities of lime water are added, they may even be sufficient to produce an alkaline stomach content and as rennet must have a neutral or acid medium in which to carry on digestion, its action is prevented. When lime water is used, it should be introduced into the mixture in a quantity sufficient to make 25 to 50% of the total milk and cream present, depending on the result desired.

As with alkalies, so the action of acids depends on the strength of the particular acid used and on the quantity present. When mixed with dilute

mineral acids, the casein of milk is precipitated. If weak acids or strong acids well diluted are used, this precipated casein is left in an uncombined state; but with stronger solutions, the casein settles as the caseinate of the acid employed.

The remaining chemical modifications are of a rather different nature to those already described. In these, the reactions are produced by the action of either bacteria or ferments.

Peptonized Milk.

Probably the oldest and best known of this class is that described as peptonization. This process is one of partial digestion carried out by the pancreatic ferment, trypsin. The change which takes place (by "change" is meant the amount of peptone formed) varies with the time during which the trypsin is allowed to act. If the action is not prolonged over ten minutes, only part of the protein is digested and the milk is not altered in taste. At the end of twenty minutes activity, the greater part of the protein has undergone change and the taste has become bitter. This result is undesirable both from the infant's point of view and also from that of the feeder. In the preparation of peptonized milk it should be remembered that it is necessary to alkalinize the milk by the addition of bicarbonate of soda before adding the pancreatic extract. When it is to be used modified by dilution, the best procedure is to make up the formula in the ordinary way and then peptonize the mixture.

It may be found desirable in very difficult feeding cases to peptonize a thick cereal preparation. In this case, the peptonizing powder should be added to the mixture immediately preceding the feeding and the normal digestion assisted in this way. This precaution is necessary on account of the rapidity with which the amylase of the pancreatic extract acts on the thick carbohydrate suspension. If the ferment be added long in advance of the feeding, the preparation becomes liquid, thus making the mixture, in which cohesion is the desirable quality, of no value.

The use of peptonization as a method of modification has declined as a better knowledge of feeding by simple dilution has been acquired. Whether or not there is ever any real indication for the use of this measure is still a matter of debate.

Lactic Acid Milk.

A modification being largely used at present is that produced by the addition of lactic acid bacilli to skimmed milk. This produces a liquid of rather sour taste which differs from ordinary buttermilk in that a great many organisms are contained in the buttermilk whereas in lactic acid milk only one strain or a known mixture of strains of bacteria is used. The value of lactic acid milk lies in the fact that besides forming a fine, flocculent precipitate in the stomach, part of its sugar content is destroyed. Where carbohydrate is not well tolerated, it can often be used with much benefit. In infants with bacterial gastro-intestinal affections, the pathogenic organisms may be displaced by the non-pathogenic

lactic acid bacilli. In the latter case, a culture of known antiputrefactive powers must be used to produce the desired result.

Lactic acid milk is usually made by the addition of the ferment in the form of a tablet. The more scientific method is to use a fresh growing culture. The bacillus bulgaricus is the organism commonly employed. The length of time the souring process is allowed to progress is determined by the acidity desired. The usual preparation is obtained by allowing the milk to ferment for from six to twelve hours at or slightly above room temperature. By placing the milk on ice, fermentation is practically brought to a stop.

The chemical change produced in fat by the lactic acid bacillus is of doubtful value. It is therefore well to add the proposed proportion of cream before feeding.

Protein Milk.

In the preparation of this food, two chemical changes are involved. The first is the production of precipitated casein in the form of finely divided junket, and the second is the fermentation of whole or skimmed milk by the addition of one strain or mixture of strains of the lactic acid bacillus. Several recipes are in use for making protein milk. One of the best of these is the following:— Coagulate the casein of one quart of whole milk by the addition of half an ounce of liquid rennet or one junket tablet. After slight stirring and standing at room temperature for thirty minutes, coagulation should be completed. Remove the whey by allowing it to drain through muslin or several thicknesses of cheese cloth for one hour. By the use of a large spoon, wooden masher or other suitable instrument pass the curd several times through a fine wire sieve in order to break it up. In order to prevent butter formation, the rubbing should be done only in one direction. Add to this finely divided curd, one quart of fermented milk. Of these, lactic acid whole milk is the most suitable, but buttermilk or other varieties may be used instead. Add enough water to make two quarts.

The composition of protein milk will be found to vary to some extent depending on the original fat content of the milk used and the amount prepared at one time. It will always, however, give a relatively low sugar with high protein. The average composition of this preparation will be; fat 2-2.5 per cent.; carbohydrate 1.5 per cent.; protein 3-3.5 per cent. If a food lower in fat is desired, the lactic acid skimmed milk can be substituted for the whole milk variety. In order to make the taste more palatable, one grain of saccharin to the quart of mixture may be added.

Holt (15) states: "The advantages of protein milk depend upon its low sugar; its relatively high fat and insoluble salts whose soaps favor the production of formed stools and check intestinal fermentation; the high protein (nearly all casein), which having been precipitated and then mechanically subdivided, is well borne by the stomach; probably to some degree the lactic acid organisms contained in the buttermilk." To this might be added that when protein milk

is first offered to an infant, it is usually rejected on account of the insipid taste. As a rule, a starvation period of twenty-four hours or more is undergone before the milk is accepted. In this way, the gastro-intestinal system is provided with a more or less complete rest for that period.

Proprietary Modifications.

Of these, the most useful is undoubtedly dried milk. Dried milk is prepared by a process of rapid evaporation on hot revolving drums or by means of superheated air. Its composition varies, depending on the manufacturer. The brand in ordinary use has a composition of:—fat 12 per cent., carbohydrate 44 per cent., protein 34 per cent. It is a light powder averaging seven to eight level tablespoonsful to the ounce. It provides in a handy, sterile form a low fat and high protein food. Infants sometimes thrive on this when other forms of feeding have failed. The low fat content can be overcome when necessary by the addition of top milk in suitable proportions. When feeding dried milk, each bottle should be prepared immediately before use, as it soon undergoes putrefactive changes after being mixed with water. Antiscorbutic powers are claimed for it. In our present state of knowledge concerning this product, it would be unwise to use it for any length of time as the sole article of diet.

It has not been the intention of this article to discuss the indications for the use of these modifications of milk, but one sees so often this preparation being wrongly used that a caution will not be amiss. Protein milk is a remedy rather than a food. Its use should not be continued for long periods, but should be discontinued as soon as the condition for which it was used has ceased to exist.

Whey.

Whey is the fluid remaining after the curd is removed from milk. It varies considerably in composition in different samples. When made from ordinary four per cent. milk it averages about one per cent. protein, one per cent. fat, five per cent. carbohydrate and 0.5 per cent. salts. The protein exists largely as soluble protein. If a fat-free whey is desired it should be prepared from skimmed milk. The relatively high inorganic content is, under some circumstances, a drawback to its use.

Evaporated milk or the unsweetened variety of condensed milk is prepared, as the name implies, by a process of evaporation. During the evaporation, it undergoes all the chemical changes taking place in heated milk, only to a much greater degree. It has a composition approximately double that of cow's milk. Van Camp's evaporated milk contains for example fat 8.35 per cent.; carbohydrate 9.71 per cent.; protein 7.01 per cent. Owing to the apparent destruction of the vital properties of the milk during the process of manufacture, its use should be limited to that of a temporary expedient.

Condensed milk (sweetened) is an article composed almost entirely of carbohydrate. Its only possible use is that of a sugar. It can be used in place of ordinary sugar, but even this is not desirable.

Admitting the possible indications for the use of some of the proprietary foods, still it is necessary that the greatest caution and hesitancy should be employed before they are prescribed. Not only because of the temptation on the part of the mother to keep the child on the food for an unduly long time, but because of the example afforded. Because Mrs. A's baby happened to thrive during a temporary diet of condensed milk, Mrs. B thinks that this would be a good article to feed her baby, and too often she continues to use this food all through infancy. The result is that baby B grows up rachitic and a prey to every infection that happens to pass his way. This is no exaggeration. It has happened time and again and will continue to occur as long as physicians are careless in the ordering of these proprietary foods.

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Read by invitation at the Annual Meeting of the Ontario Educational Association, June, 1917.

Infantile Diarrhœa.

"All experience goes to show that Virol is a food of marked value in a great variety of conditions in which adequate nutrition by ordinary means is not easy to secure, including the general range of diseases accompanied by Wasting and Summer Diarrhœa."—*British Medical Journal.*

Virol is used in more than 2,000 Hospitals and Infant Clinics.

Age 14 months. Weight 10 lbs.
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H. J., a boy of twelve months, was brought to me suffering from Summer Diarrhœa. He had been fed nine months at the breast, and three months on some brand of Condensed Milk without checking the wasting. The usual remedies having failed, he was first put on a diet of Virol and Barley Water, then Milk was added. His weight uniformly increased at the rate of six ounces a week. He is now a fine, bright healthy child in the pink of condition, and weighs 30 lbs.

Diet in Infantile Diarrhœa.

To each half-pint of Rice or Barley Water add one eggspoonful of Virol. Give one or two ounces of this mixture every two hours. In cases of great prostration add ten to fifteen minims of Brandy. When the evacuations indicate that the infection is at an end, sterilized milk can be cautiously added to the Virolized Rice or Barley Water, the milk being substituted for the Rice or Barley Water dram for dram, until Virolized Milk is the sole article of diet. As the child improves the Virol can be gradually increased.

VIROL

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Abstracts

PUBLIC HEALTH REPORTS—JUNE 18, 1920
PELLAGRA

Voegtlin Pharmacologist, U.S. P. H. S., points out that a liberal mixed diet was found curative by Lussana and Frua as far back as 1856. Milk, meat, eggs, which are the things found useful in treatment, are also the things found lacking in the diet which leads to pellagra. Notwithstanding that dietary deficiency is now generally admitted as the cause of pellagra, the particular deficiency responsible has as yet to be determined. It seems not unlikely that pellagra may be due to a combination of deficiencies, the factors in the combination in any given case not necessarily being identical with those in another.

PASTEURIZATION

(*American Journal of Public Health, Sept.* 1920).

Tonney, Director of Laboratories, Chicago Health Dept., states that 98% of Chicago's milk supply is pasteurized. The milk, nearly a million quarts daily, comes from about 18,000 farms, and is pasteurized in 456 plants, being distributed through 603 milk depots. He designates as required for Public Health Superintendence of this work, one milk inspector for each 25 plants to look after general inspection, scoring, collection of samples. Each plant receives inspection at least once in two weeks and must make a score of 75%. About one inspector to every 75 plants should be more highly trained and capable of passing upon new installations. Special inspections and plating of samples, under supervision of the chief bacteriologist. A supervising inspector for each 25 inspectors is required.

Contagious diseases are especially searched for amongst the employees of the plants; and all cases of contagion reported in the city are tabulated by milk supply, in order to detect any undue number occurring amongst the customers of a given plant.

Bacteriological and temperature contest of the process is carried out, the former by plating the milk, the latter by continuous recording thermometers attached to each pasteurizing device. The charts from the latter are inspected by the Health Department and deviations indicating irregularities in the pasteurizing process are followed up. The effort is made to supervise and improve the plants, correct faults and encourage good work rather than use court procedure which nevertheless is necessary in some instances.

Quotations from Doctors:

No. 7

"The majority of cases of pneumonia, in my experience of thirty years' medical practice, have had more or less pleuritic complications.

"I presume this is the experience of my colleagues.

"The most grateful application that can be made to a patient suffering with pneumonia is a warm

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TUBERCULOSIS

(*American Journal Medical Sciences, Sept.* 1920).

Lawrason Brown, Saranac Lake, gives encouragement to the general practitioner in early diagnosis of tuberculosis, singling out certain phases. He thus summarizes the decisions to be reached in examination: Is tuberculous infection present? Is clinical tuberculosis present? Is the disease active, inactive or potentially active? He insists that the only pathognomonic sign is the presence of tubercle bacilli, which may be found in stomach contents or feces, when the sputum is not obtainable. In many advanced chronic non-tuberculous pulmonary diseases the chief if not the only point of differentiation is the absence of tubercle bacilli, in the sputum. Rales heard after a cough, are described and their diagnostic importance emphasized as next to the finding of tubercle bacilli.

Roentgenology is placed high as a diagnostic means, especially in determining that whether an apparently incipient (or "minimal") case is not really more advanced than the physical signs indicate. A diagnosis of "incipient" case should be confirmed by X-ray, before being made final, as it is likely to be more advanced than physical signs alone indicate. This is especially true in apical cases, where slight physical signs may by X-ray be shown associated with more or less deeply seated parenchymatous lesions. The X-ray may on the other hand reveal that the abnormal signs found are not due to tuberculosis. Hemoptysis of a dram or more, followed by streaked sputum, or recurrent hemoptysis, is important—acute bronchitis, pulmonary abscess and bronchiectasis may yield streaked sputum.

No cutaneous, ophthalmic or subcutaneous tuberculin test separates active from inactive tuberculosis, but a positive cutaneous test reveals the patient as allergic and that he has harboured the tubercle bacilli for some time. To decide whether active or inactive, subcutaneous tuberculin in combination with X-ray may be used in a very small number of cases. In general, all the physical signs and symptoms must be carefully aligned.

In treatment, psychology is mentioned first—telling the patient his disease and enlisting his cooperation. Rest is the great essential and the author indicates his methods of impressing the patient on this point. Exercise, at the proper time, is as important as rest, but should be undertaken with the greatest care and in the most moderate way, under the closest observation.

Feeding properly, not mere overfeeding, is advocated.

The value of air is exerted in what might be called the air bath. Fresh air is no more good for the lungs than for the knee. Window tents that ex-

pose the head and neck only while the body is inside have the effect that spraying the face and neck in lieu of a bath would have in typhoid fever. The circulation of air about the patient, not the breathing of fresh air is important.

CHANGES IN VIEWS OF TUBERCULOSIS TREATMENT

Striking revisions in the doctrines of treatment in tuberculosis, now growing widespread amongst tuberculosis specialists, are well illustrated in the above extract from one of our foremost authorities. Rest is made the superlative factor, feeding the second; and fresh air is added perhaps as an adjunct to feeding. The old formula made fresh air often extravagantly sought, the main item; and moreover explained its use as directly beneficial to the lungs. Lawrason Brown has now adopted the teachings of those who have maintained on the careful evidence laboriously collected during the last fourteen years that fresh air has little or no specific effect on the lungs at all. Its real function lies in getting rid of the superfluous heat of the body, which makes the fresh air factor a perpetual cooling bath, in some sort like the intermittent cold bath of typhoid fever. Some of us have long believed and taught what at last has Brown's endorsement, that the much advocated window tent was fallacious. It has indeed been said that the only proper window tent, under the newer ventilation doctrines, would be so constructed as to reverse the orthodox position of the patient, i.e., leaving the body out of doors by all means, the head indoors, if so desired. Lawrason Brown has shaken off also the shackles of the forced breathing teaching, and has joined the ranks of those who see in it no help, even perhaps a detriment to the lungs. When rest is the essential, why exercise—and especially why exercise exactly the part suffering most from the disease? Dr. Brown's comments on feeding are particularly valuable and the whole article is well worth the attention in its unabbreviated form.

VENEREAL DISEASES.

England.

A very interesting discussion has been going on in the British Medical Journal during the last three months between the adherents and opponents of prophylactic packets. These two points of view are represented in England by two strong Venereal Societies, the British National Council for Combating Venereal Diseases, who are against packets, and the British Society for the Prevention of Venereal Disease, a strong new organization who, while admitting the value of the methods recommended by the older voluntary society, also desire the introduction of the prophylactic packet.

The discussion, if it has done nothing else, has stimulated interest in England in the Venereal

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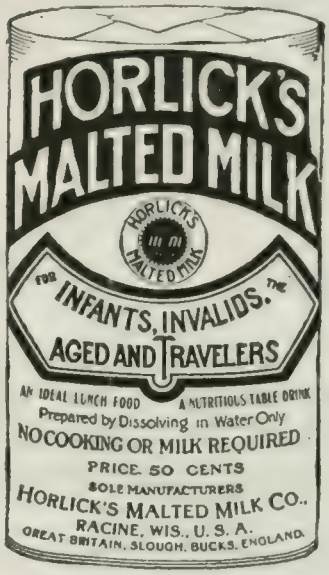

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Disease Problem. The Minister of Health in England was approached by members of the Society for the Prevention of Venereal Disease, but up to the present he has not given them much encouragement. However, the Portsmouth Council are going to try out the prophylactic packet in Portsmouth under the Medical Officer of Health there and results of this test will be eagerly awaited. In Canada it has, up to the present, been considered that prophylactic packets would probably do more harm than good and nothing of that nature has yet been mooted.

United States

The outstanding feature in Venereal work in the United States is the coming All-America Conference on Venereal Disease to be held in Washington from December 6th to 11th, 1920. This conference is being called under the auspices of the Government and voluntary V. D. agencies of the United States and should be of the greatest possible interest to all V. D. workers in Canada. The preliminary programme shows that all phases of the subject will be touched. The following subjects will be under discussion:

1. Problems relating to Medical Investigations.
2. Problems relating to Education.
3. Problems relating to Law Enforcement.
4. Problems relating to Social Influences.
5. Problems relating to Administrative Control Methods.

Canada

The Venereal Disease programme in Canada is now well under way. The Canadian National Council for Combating Venereal Diseases has been very active during the past year and has been showing "The End of the Road" with great success throughout the country.

Ontario.

The Provincial Board of Health has been perfecting its organization in connection with its campaign against Venereal Diseases. Venereal Disease clinics are now established in Toronto, Hamilton, Windsor, London and Kingston. Other clinics are being established in Fort William, Sault Ste. Marie and North Bay. A comprehensive scheme for the treatment of Venereal cases in the smaller towns and the rural districts, where clinics are not feasible, has been worked out so that the treatment will be carried out under the direct supervision of the Board through the local Medical Officers of Health.

The Provincial Board of Health is now supplying free, for the free treatment of patients unable to pay, Phenarsenamine (salvarsan). This preparation has so far given good satisfaction and the reactions to its use have been very slight and infrequent.

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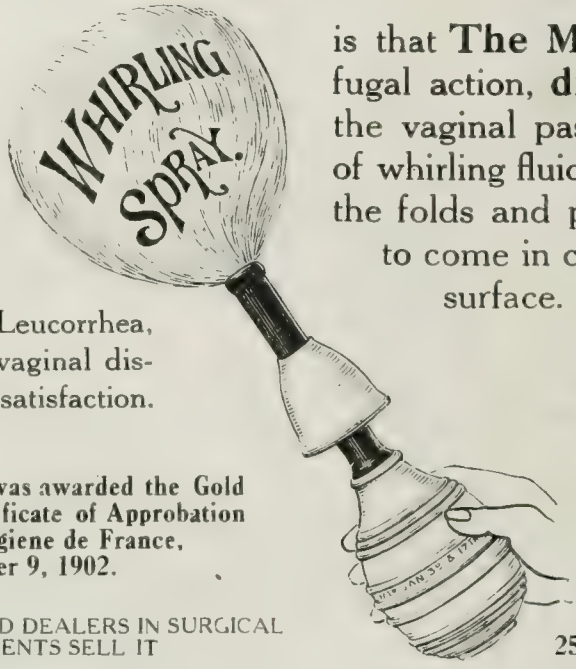

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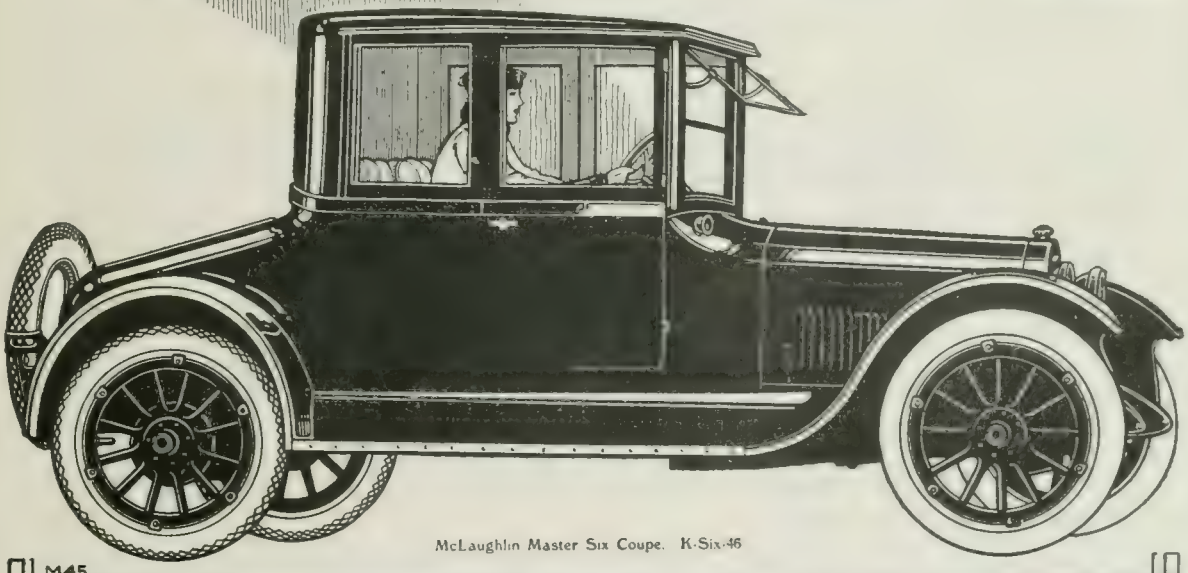

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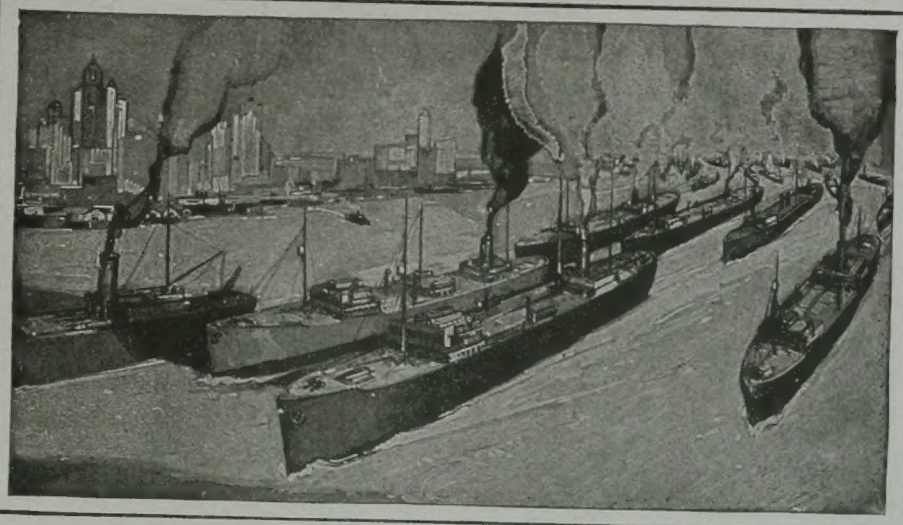

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